

ABSTRACT OF THE DISCLOSURE

An optical monitoring apparatus based on the scanning of the gain profile of erbium-doped fiber amplifiers (EDFA) and applied in a wavelength division multiplexing network has been proposed and experimentally demonstrated. The EDFA with an injected saturated
5 tone can provide variable gain or loss profile by controlling the pump power. The components used in the present optical monitoring apparatus for use in a wavelength division multiplexing network are easily available and cost-effective, valuable for monitoring frequency and power of a WDM optical communication system, and capable of greatly enhancing resolution of monitoring frequency spectrum for the optical fiber network system.